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# The BULLETIN of the AMERICAN ASSOCIATION OF PUBLIC HEALTH DENTISTS

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THE BULLETIN OF THE AMERICAN ASSOCIATION OF PUBLIC HEALTH DENTISTS

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CONTENTS

| | Page |
|---|---|
| A Stannous Fluoride Dentifrice as an Anti-Cariogenic Agent - Joseph C. Muhler | 1-8 |
| Evaluation of Dental Public Health Programs - George A. Nevitt | 9-13 |
| What Should be the Goal of Dental Hygiene Education - Philip E. Blackerby, Jr. | 13-15 |
| A Criticism of the Pamphlet "Artificial Fluoridation - Laymen's Dilemma" (by Konstantin K. Paluev) - James R. Abernathy | 15-20 |
| Editorials | 21-23 |

NOTES AND NEWS

| | |
|---|---|
| San Francisco | 24 |
| Pleasant | 24 |
| Speaker | 24 |
| New Municipal Director | 24 |
| Territorial Director | 24 |
| Kansas Reports | 25 |
| A. D. A. Council Meetings | 25 |
| Decade Ceremony | 25 |
| Corroboration | 25 |
| And Yet | 26 |
| Book Review | 26-27 |
| Procedural | 27 |
| Good News! | 27-28 |
| Overwhelming | 28 |
| Dentistry and Endocarditis | 28 |
| Moral - Don't Ask Questions | 29 |
| Harry Strusser Memorial Fund | 29 |
| Delayed Praise | 29 |
| Remember | 30 |
| Too Bad | 30 |
| Institute | 30 |
| Correspondence | 30-31 |
| Oh! Happy Day | 31 |
| Service | 31 |
| Welcome to the Fold | 31 |
| Using T V | 32 |
| Visitors | 32 |
| Ruble Report | 32 |
| Duty | 32 |
| Does It Float? | 32-33 |
| Query | 33 |
| Abilities Recognized | 33 |
| Please Answer the Question | 33 |
| Only Two Days? | 33-35 |
| Elected | 35 |

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# A STANNOUS FLUORIDE DENTIFRICE AS AN ANTI-CARIOGENIC AGENT*

Joseph C. Muhler, D.D.S., Ph.D.**

For those of us interested in the public health aspects of dental caries, an effective dentifrice for the control of dental caries in adults as well as in children would be a welcome adjunct to the presently available caries control measures. The ten fold magnitude of the problem of dental caries experience in children over that in adults has the effect of minimizing the importance of the adult problem. There should be little doubt in our minds, however, concerning the seriousness of this problem, and to strengthen our conviction that adequate control measures are needed for adults, we need only to examine statistical data secured as a result of the conscription laws at the beginning of World War II.

During the first months of conscription in 1939 - 40, the rate of rejections in young male adults because of defective teeth was so great that even the simple requirements of six opposing anterior and posterior teeth had to be waived in order to furnish the Army with the needed personnel. From World War II dental statistics it was shown that in the age group 21 - 35, more than 22 teeth per man were attacked by dental caries, 13 teeth per man were extracted and 2 needed to be, 2 teeth per man were restored and 5 were carious and needed to be restored. In addition to this, 40 per cent of the recruits required immediate treatment for pain and 5 per cent required immediate replacement of teeth in order to eat food. Today, less than 40 per cent of the yearly increment of required dental services are received. This amounts to an annual backlog, in adults only, of over a billion units of required dental services. The cost of these services to the taxpayer today exceeds $100,000,000 a year. Furthermore, more men were rejected because of failure to meet the dental requirements among the first 2 million men examined than because of any other physical defect (1).

Previous attempts to use prophylactic agents to reduce the dental caries experience in the adult population have been reported and varying degrees of success have been indicated. Table 1 summarizes these findings.

Since many of these results are from small groups or are contradictory in nature, their significance may be considered somewhat doubtful. Furthermore, many of the studies did not show a significant reduction in the dental caries experience. Therefore, it was of interest to study larger groups and of special interest to consider the effect of a dentifrice containing $SnF_2$. Previous work has indicated a pronounced reduction in dental caries in children when stannous fluoride was topically applied (2).

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*Presented at the annual meeting of the American Association of Public Health Dentists, on November 7, 1954, at Miami, Florida.
**Department of Chemistry, Indiana University, Bloomington, Indiana.

Table 1. Use of Fluorides in Adults as Anticariogenic Agents

| Investigator | Fluoride Conc. | Fluoride compound used | pH | Vehicle | Age of subjects | Reduction (%) |
|---|---|---|---|---|---|---|
| Arnold, et al | 1% | NaF | 4.5 | water | 20 | no reduction |
| Klinkenburg and Bibby | 1% | NaF | neutral | water | 18-40 | 56.5 (surfaces) |
| Rickles and Becks | 2% | NaF | neutral | water | 22-34 | 36.8 (surfaces) |
| Kutler and Ireland | 2% | NaF | neutral | water | 20-24 | 18.7 (teeth) |
| Bibby | 500 ppm | NaF | - | dentifrice | college students | no reduction |
| Bibby, et al | 500 ppm | NaF | - | mouthwash | dental students | no reduction |
| McClendon and Foster | - | powd. rock phosphate | - | dentifrice | medical students | 33 |

Table 2. Percentage Reduction in Increase of New Caries Compared to Those of Control Group After Two Years Following Initial Treatment (2).

| Group | No. Subjects | DMF teeth | In prev. caries-free teeth | In prev. DF teeth | Prox. surfaces | Occ. surfaces | Total DMF surfaces |
|---|---|---|---|---|---|---|---|
| A* | 92 | 23.6 | 37.9 | 27.5 | 22.4 | 56.2 | 36.3 |
| B** | 194 | 83.1 | 52.0 | 97.1 | 27.4 | 83.0 | 58.8 |
| C*** | 195 | 60.9 | 48.0 | 100.0 | 40.2 | 80.4 | 65.5 |

* Sodium fluoride by cotton applicator
** Stannous fluoride by cotton applicator
*** Stannous fluoride by spray, continuously applied

Table 2 shows a comparison between stannous fluoride and sodium fluoride when applied topically to the teeth of children, ages 5 to 16 years, in Bloomington, Indiana. The most complete estimate of the effects of the three fluoride treatments lies in the last column labeled total DMFS. In the terms of this index the NaF group experienced 36.3 per cent less new decay during the two year period than did the control group. The two stannous fluoride groups experienced 58.8 per cent and 65.5 per cent less new decay than the control group. All of these percentage reductions are significant with probabilities of less than 0.01. This table also shows the test results in terms of the components of DMFS. The two columns after the DMFT column separate the new carious surfaces on the basis of whether they occur in teeth that were previously caries-free or on ones which were previously carious. It appears that NaF affords less protection for decayed teeth than it does for caries-free teeth while $SnF_2$ shows considerably greater effect on decayed teeth than on caries-free teeth. The occlusal surfaces show the greatest protection in all three fluoride groups while the proximal surfaces show a lesser effect.

The results in terms of new DMF teeth indicate a striking advantage for both types of $SnF_2$ treatment over the NaF treatment.

The choice of a dentifrice as e vehicle for an anti-caries agent is ideal from the viewpoint of its availability to all classes of people. However, one may question if topically applied fluorides have the same beneficial effects as fluoridation from systemic effects.

Milk, for example, was considered as a fluoride carrier, in order to provide some method for people who cannot use a communal fluoride water supply, but this would mean the ingestion of widely different quantities of fluorine by different children. Further, there is the probability that fluorine in milk is less effective (3) due to formation of an insoluble calcium fluoride. Bread and salt have been considered but again their consumption by children is too variable to assure the ingestion of a proper amount of fluorine.

The selection of a dentifrice abrasive was made on the basis of enamel solubility reduction tests on numerous abrasive - fluoride combinations. Table 3 indicates the results of only a small portion of some of these chemical studies, but illustrates why the selection of a heat-treated calcium phosphate was selected as the most compatible abrasive.

Table 4 shows the composition of the dentifrice used. The constituents of the dentifrice, such as binder, humectant, flavor and detergent were the same for both dentifrices used in this study. The experimental toothpaste contained 0.4 per cent $SnF_2$ and the control toothpaste was the same as the experimental in every respect except that it did not contain $SnF_2$. The two dentifrices were indistinguishable by color, flavor, consistency, or in any other way. Both were packaged in plain white containers with only the identifying numbers printed on them.

---

*The stannous fluoride was prepared by Mr. Joseph Davis at Indiana University, to whom we are indebted (4).

Table 3. Effect of Different Abrasives on Powdered Enamel Solubility in the Presence of $SnF_2$

| Abrasive | % Reduction in Enamel Solubility |
|---|---|
| Dicalcium phosphate | 24 |
| Tricalcium phosphate | 42 |
| Heat treated dicalcium phosphate | 94 |

Table 4. The Composition of the Dentifrice

| | |
|---|---|
| Heat-treated calcium orthophosphate | 42% |
| Detergent (non-soap) | 2% |
| Humectant | 25% |
| Water | 29.2% |
| Binder | 1.4% |
| $SnF_2$ | 0.4% |
| Flavor | q.s. |

A total of 514 children ranging in age from 6 to 15 years were given a dental prophylaxis followed by a thorough clinical examination with the aid of complete bitewing radiographs. The examination card (illustration 1) upon which the dental findings were recorded was completely masked except for the blank spaces to be filled in. This procedure was adopted to minimize the possibility for bias in the examination and to make the initial and subsequent examinations completely independent of each other. Similar numbers of control and experimental subjects were examined each day in random order to distribute equally between the two groups the effect of unavoidable changes in standards of judgment which may occur from day to day.

The subjects were divided into nine classes on the basis of previous caries experience. Within each class they were assigned either to group #1 or #2 by a randomizing process which maintained almost equal numbers of subjects in each group. The total DMF at the start of the study of those who completed the test year was 7.85 for the control and 7.63 for the experimental group. The subjects returned to the Dental Clinic at 6 months intervals to receive a dental prophylaxis, complete bitewing radiographic examination, and clinical dental caries evaluation.

The data for children who used the dentifrice for a period of one year are seen in table 5, which shows a 54 per cent reduction in DMF teeth at the end of 6 months for the group using the $SnF_2$ dentifrice when compared to the control group. When the DMF surface index is used the reduction for the $SnF_2$ dentifrice group was 72 per cent. Both of these reductions are highly significant as indicated by the low probabilities.

The 6, 7, and 8th columns in table 5 show the caries increments by DMF surfaces by proximal, occlusal and buccal-lingual surfaces. It is apparent that the $SnF_2$ dentifrice protected the different surfaces to widely different degrees. The most marked protection against caries occurred on the proximal surfaces of the teeth in children using the $SnF_2$ dentifrice. Occlusal surfaces showed the lowest degree of protection. The buccal-lingual surfaces showed about the same degree of protection as the average for all the surfaces.

After 12 months a reduction of 51 per cent in DMF teeth and 49 per cent in total DMF surfaces was noted. The proximal surfaces were best protected from caries showing an 84 per cent reduction. Again, the stannous fluoride dentifrice appeared to protect against new decay to a greater degree in the teeth previously decayed than in previously caries-free teeth. (4,5).

Unpublished data (6), indicate that adults ranging in age from 17 to 36 years have a similar reduction in dental caries when they used a stannous fluoride dentifrice under unrestricted experimental conditions identical to those as outlined above. It appears from these data that a stannous fluoride containing dentifrice similar to that used in these two clinical studies are effective in reducing the incidence of new dental caries in both children and adults. Since it has been determined that a sodium fluoride containing dentifrice is without effect in inhibiting dental caries (7, 8), it appears that the tin component must play an important role in bringing about the dental caries reduction noted in these studies. The ultimate expansion of the

Table 5. Average Increase in Caries in One Year in Children Using a Stannous Fluoride Dentifrice

| | Dentifrice Group | Number of children | DMFS in previously caries-free teeth | DMFS in previously DF teeth | New Proximal surfaces decayed | New Occlusial surfaces decayed | New Bu-Li surfaces decayed | Total new DMFS | New DMFT |
|---|---|---|---|---|---|---|---|---|---|
| 6 Mo. data | I (control) | 197 | - | - | 0.701 | 0.574 | 0.538 | 1.812 | 0.701 |
| | II | 223 | - | - | -0.072 | 0.429 | 0.161 | 0.516 | 0.327 |
| 12 Mo. data | I (control) | 209 | 1.45 | 1.27 | 1.29 | 1.09 | 0.63 | 3.01 | 1.31 |
| | II | 214 | 0.86 | 0.48 | 0.21 | 0.77 | 0.55 | 1.55 | 0.65 |
| | Reduction in caries (%) 6 month | | | | 100 | 25.8 | 70.1 | 71.52 | 53.35 |
| | p | | | | .00001 | 0.22 | .003 | .00001 | .003 |
| | 12 month | | 40.5 | 62.1 | 83.7 | 29.8 | 12.8 | 49.3 | 50.6 |
| | p | | .001 | .005 | .00001 | .014 | .05 | .0001 | .001 |

communal water fluoridation program is limited in that it can reach only about 50 per cent of the population at its maximum development. An effective fluoride dentifrice which can theoretically reach the entire population would be an exceedingly welcome adjunct to preventive dentistry. Furthermore, since this dentifrice contains $SnF_2$ rather than NaF there is a definite possibility that it could offer additional benefit to those people using a fluoridated water supply.

## Conclusions

The effect of a $SnF_2$ - containing dentifrice has been studied in a group of children ranging in ages from 6 to 15 years. After using the dentifrice for one year there was a 49.3 per cent reduction in caries rate on the basis of new DMF surfaces. In terms of DMF teeth, the reduction was 50.6 per cent at the end of one year. A reduction of 62.1 per cent was found in new DMF surfaces in previously carious teeth, indicating that $SnF_2$ is quite different from NaF in its effect on the teeth. An identical $SnF_2$ dentifrice results in a pronounced reduction in dental caries in young adults after using the dentifrice for a period of one year. From these human clinical studies it appears that $SnF_2$ is superior to NaF as an anti-cariogenic agent when applied to children or adults' teeth.

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# EVALUATION OF DENTAL PUBLIC HEALTH PROGRAMS*

George A. Nevitt, B.S., D.D.S., M.S.P.H.**

Nowadays the term "evaluation" may be employed too frequently, but the practice is not. The application of evaluation techniques should be recognized as standard procedure as well as a moral obligation, in order that high professional standards of public health practice will be maintained and will continue to grow.

Public health programs, supported by public funds, require continuing review to determine how, with a fixed amount of money, we can do a better job by curtailing activities no longer needed, by shifting emphasis, by adding new programs or by adopting improved methods. This implies change, and we all resist change. For instance, it might mean that a certain "pet" activity, which is no longer essential, should be eliminated or that we should learn new ways of doing things. Evaluation requires not only critical review, but a very mature attitude on the part of the reviewers.

Dental health programs exist in order to prevent dental caries and other oral diseases, to cure diseased parts of the oral cavity, to correct malformations and to encourage the maintenance of good dental health. These broad objectives will not vary from program to program, but the specific methods employed to achieve them will differ greatly. Generally, however, the programs all will include prevention, treatment and education to create an awareness of the problems and encourage appropriate action which might be taken to reduce or eliminate them.

We are inclined to associate dental health programs almost exclusively with the control of dental caries because caries is one of the most, if not the most, prevalent of all diseases. However, it should be recognized that a well rounded dental health program might include measures to correct, eliminate or alleviate any of the following in addition to dental caries: (1) periodontal disease; (2) malocclusion; (3) fluorosis; (4) oral cancer; and (5) cleft lip and palate. The DMF index has been developed for measuring dental caries[1] and a graded classification has been widely used for measuring fluorosis or mottled enamel.[2] Other measures applicable to survey type procedures are now being studied for use in two of the other conditions; namely, the P. M. A. index for measuring severity of gingivitis[3] and the dento-facial index for measuring degrees of malocclusion.[4] This indicates that in time, if not in fact now, other aspects of dental health programs can be evaluated as critically as those directed toward caries control and mottled tooth enamel.

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* Presented before the Dental Health, Food & Nutrition, Health Officers, Public Health Education, Public Health Nursing, School Health, and Statistics Sections on October 12, 1954.

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Evaluation is so dependent upon planning that a brief review of an acceptable type of planning to accomplish specific objectives may be pertinent. Our objective, for example, in a dental caries control program is to reduce the prevalence and incidence of dental decay and to prevent the loss of teeth. This objective cannot be accomplished without careful planning of long range and intermediate goals. Periodically a specific plan listing each intermediate objective should be prepared. These might be: (1) to institute a topical fluoride program in a particular area of a county; (2) to eliminate the sale of sweets in a school or a school district; (3) to make provision for dental care services to dentally indigent children; (4) to establish and maintain a dental care referral and follow-up system for children in selected grades; (5) to stimulate the fluoridation of a community water supply; or (6) to make better use of dental health materials and resources to bring about action and support of programs. Each of these intermediate objectives will, if our present concepts are correct, bring us nearer to the ultimate objective of reducing the incidence and prevalence of dental caries and maintenance of good dental health.

This is only the first step in planning. The heart of a plan lies in the detailed procedural methods outlined for accomplishing each intermediate objective. For example, to institute a topical fluoride program in a particular area of a county, plans to gain support of leaders and organizations must be made, financial support must be sought, personnel recruited, equipment purchased, and treatment schedules prepared.

Some might say, this is just an exercise. They know their objectives and will do as much as possible in the time available. Nevertheless, a plan is essential in lending program direction, providing a check list of progress and serving as a basis for program evaluation.

One study presented four categories of possible methods for evaluating dental programs. These categories comprised: (1) Methods which measure the volume of administrative activities designed to promote dental health. This category included numercial data on circulars and pamphlets prepared and distributed, talks given, children examined, local programs initiated, and refresher courses on children's dentistry conducted. These data are useful when justifying funds and personnel time expended. (2) Methods which measure public response to program activities. This group measured such facets of program progress as the number of children acquiring 100 per cent correction cards in a referral program, the attendance at lectures on dental subjects or at dental clinics, the requests for dental inspection services, and the financial support and other evidence of interest by civic groups and individuals. (3) Another group of methods measured the volume of dental service dispensed. This measurement is determined largely by counts of fillings and extractions and provides a means for estimating the needs met and the cost of each unit of service. (4) The last group of methods were used to measure the effects of a program on dental health.[2/]

Today we are concerned with this fourth category which measures the <u>effects</u> of a program on dental health.

Two types of appraisal can be made: one is subjective, the other, and by far the most useful, is objective. Subjective methods, at times, are acceptable to use in evaluating program success. For example, when the effectiveness of a procedure such as the topical application of a fluoride solution has been thoroughly field tested in advance of its general application, the mere institution of the activity is a sign of progress. This subjective type of appraisal is the most basic of the simple evaluation technique available today. It requires no survey, statistical measures or clever devices. It requires only a review of the previously prepared plan and the answer to the vital question, "Was this done?"

The test, then, to determine whether this simple type of evaluation can be used rests in careful planning. If a tested procedure is to be applied and accepted methods are included in the program plan, and if these activities are instituted and maintained at the proposed level, then this is a measure of program success. However, the effect of even a project of topical application of a fluoride solution on the community dental health program at times must also be demonstrated in terms of reduced incidence and prevalence of dental caries.

We may have little more than a general impression that some activity might contribute to the total program. If the hypothesis seems valid, after consideration and review of related experiences, the activity may be started in a limited area under study conditions. The first requirement is to call in someone with a know-how, who may or may not be a staff member, before starting the program. In this way expert assistance may be mobilized in planning soundly with respect to the program objective, methods for selecting participants, establishing controls, carrying out test procedures and analyzing the accumulated data objectively.

Any program directed toward the reduction of the incidence and prevalence of dental caries and the promotion of positive dental health must, in the final analysis, be judged in the same terms. The basic measurements required to measure success or failure of a specific study or of a continuing program are the same.

Precise dental caries measures are so easily made that current morbidity rates for any population group can be obtained with considerable accuracy without the expenditure of large amounts of time and money. This device provides the means for critical and continuing program evaluation to measure the success of each aspect of a dental health program.

The appraisal is dependent upon periodic age specific comparisons of dental caries prevalence and tooth mortality. It may also include a measure of needs met in permanent teeth, although this may be more properly related to volume of clinical services. The basic measure for the determination is one with which many are familiar—the DMF index, that is the number of teeth decayed, filled, missing or indicated for extraction. Within a single community the components of the DMF are helpful in measuring the success or failure of a dental public health program, but the use of this kind of an evaluation tool requires the early establishment of a baseline describing the age specific status of dental caries in the children. From the base-line survey made either

on the entire child population, 6 to 15 years of age, or in large communities made by sampling each age group, the average number of decayed, missing and filled permanent teeth per child is measured. This measure provides the base line from which an evaluation of a preventive program will be made. After several years, a resurvey of the population exposed to the preventive dental program would show a decreased DMF, if the program will have been successful. A comparison in the two time periods of the number of permanent teeth lost per 100 children or per child would show success if tooth mortality were reduced. Even though the total DMF may not change substantially, the components may. For example, in a group of children, the F component may represent only 25 per cent of all decayed, missing and filled teeth. In other words, only one-fourth of the needs are being met. After an active program and resurvey, the filled component may have been increased to represent two-thirds of the total number of DMF teeth. This reflects that more needs are being met and that we might expect future reductions in tooth mortality since tooth loss due to untreated caries would be expected to decrease. These would be measures of program progress.

These measures, then, permit us to review program progress from three different viewpoints. First, a significant drop in the average DMF for one or more age groups over a period of years indicates that the objective to reduce the prevalence and incidence of caries is being met. The preventive methods instituted are preventing tooth decay. The second and third measures show success even if the total DMF, the prevalence of dental caries, is not changed. A decrease in tooth mortality reflects success in saving permanent teeth, perhaps because earlier dental care was obtained by larger numbers of children. An increase in the per cent of needs met also shows that more children are receiving dental care, possibly as a result of a referral system, educational program or greater availability of service.

We have these methods available for critical and objective evaluation of dental programs. They are simple and ready to be used by the health department, the dental society, and other interested community groups. Such evaluation, based on a sound program plan, should improve the dental health program by pointing up its strengths and weaknesses and by providing positive direction.

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## WHAT SHOULD BE THE GOAL OF DENTAL HYGIENE EDUCATION*

Philip E. Blackerby, Jr., D.D.S.**

The basic objective of professional education, in any field, is to prepare the student adequately to perform the technical functions and to assume the specific responsibilities which will be expected of him or her as a member of a particular profession. Less precisely defined, but equally important, purposes are to develop in the student a desire for continued learning, proper habits of study, a sense of social responsibility, and an understanding of intra- and inter-professional relationships. The latter objectives may be said to constitute the fundamental differences between professional and vocational education.

In its continuing efforts to evaluate and to strengthen schools of dental hygiene, the Council on Dental Education has adopted the following definition of the function of the dental hygienist as a basis for establishment of the aims and objectives of dental hygiene education:

"The prime function of the dental hygienist is to assist the members of the dental profession in providing oral health care to the public. She may apply her knowledge and skills either in the office of the private practitioner, or in formal health educational activities in schools or other agencies. In either instance, she can and should perform an important function in health education.

"The intra-oral operations performed by the dental hygienist shall be limited to the natural and restored surfaces of the crowns of the teeth beginning at the epithelial attachment; in no circumstances shall she attempt to treat pathologic involvements of the crowns of the teeth or of the supporting and adjacent tissues.

"At the discretion of the dentist, and within the limitations of the laws of the state in which she is practicing, the dental hygienist may be required to perform other important office duties for which her training in the hygienist school may have prepared her.

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* Presented before the Conference Session on Dental Hygienist Education, American Association of Dental Schools, French Lick, Indiana, March, 1954. (Republished by the kind permission of the author and the Journal of Dental Education in which it first appeared).

**Director, Division of Dentistry, W. K. Kellogg Foundation, Battle Creek, Michigan; Member, Council on Dental Education, American Dental Association.

"The present two-year course seems adequate to prepare the dental hygienist to perform the tasks that may be assigned to her in the private dental office, but when employed by a school system or any other agency, her dental hygiene education should serve as a foundation for further study, or as a supplement to previous study to prepare her to assume such responsibilities. Her education should develop a sense of professional responsibility and an understanding of her relationship to the broad field of health as well as a capacity for growth and advancement."

Dental hygiene education must prepare the student for a profession which, like dentistry, is both an art and a science. To produce the unusual combination of skilled workman and effective teacher must be the aim of the dental hygiene school, if its graduates are to achieve their maximum usefulness as auxiliaries to the dental profession. While there is not complete unanimity of opinion as to the scope of the technical services which the hygienist should be expected to perform in the dental office, there is full agreement concerning her basic function as a health teacher. For both aspects of her service, therefore, she must have adequate preparation in fundamental concepts and technics, leaving to the postgraduate period the additional training necessary for special or unusual duties to which she may be assigned in the dental office, the public school, the health department, or elsewhere.

It is apparent from the definition cited above that the curriculum in dental hygiene, if it is to serve its full purpose, must achieve considerably more than just technical proficiency on the part of the student. The scope of good dental hygiene practice goes far beyond performance of the routine toothbrush instruction, prophylaxis and other intra-oral procedures which are often thought of as the principal functions of the dental hygienist. Her education must also prepare her to understand human behavior and to develop a keen sense of inter-personal relations; to be familiar with the psychology of learning and the principles of education, as applied both to individuals and to groups; to develop effective working relationships and intellectual compatability with the dentist, the teacher, the nurse and others in the realm of health education; and to assume her proper position as a professional worker and leader in her community. It is the general recognition of these broader functions and responsibilities of dental hygiene that has given it the status of a profession, with resultant expansion and improvement of dental hygiene education.

It is evident, too, that the dental hygienist, if she is to justify her professional position, must acquire an understanding of scientific discipline, an appreciation of professional ethics, and a strong desire for continuing education and self-improvement. She must have developed initiative, self-reliance, poise, dependability, professional conscience, integrity and dignity and she must be dedicated to public service. She cannot be content merely to pursue routine or to covet material gain.

These, then, are the personal and professional qualifications which the dental hygiene education program must be designed to achieve in the student. And it must be emphasized that, in dental hygiene as in other professional fields, there are varying levels of professional competence and technical skill which require more than one level of education and training. There must be adequate provision, in dental hygiene, for advanced or postgraduate education

to prepare practitioners for those more complex and difficult professional duties for which the basic educational program cannot be expected to produce adequate preparation and proficiency. These include the teaching, public health and administrative or supervisory positions for which there are increasing opportunities for dental hygienists.

Dental hygiene education must be dynamic, flexible and geared to the constantly changing social and professional patterns. Its specific aims and objectives cannot be fixed and rigid but must be subject to periodic review, evaluation and reorientation in order that dental hygiene as a profession may grow, adjust and become ever more effective in its broad purpose of service to dentistry and to the public.

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## A CRITICISM OF THE PAMPHLET, "ARTIFICIAL FLUORIDATION-LAYMEN'S DILEMMA" BY KONSTANTIN K. PALUEV

By: James R. Abernathy*

Basic Premise: From the information on DMF rates per child before fluoridation and after 6½ years of fluoridation, published on the Newburgh and Grand Rapids experiment, the author observes that the DMF rates after fluoridation, beginning at the age of 8 in Newburgh and 7 in Grand Rapids, increase at the rate of approximately 42% each year up to the age of 12 years. He notes that this represents a doubling of the DMF every two years during this period and makes the assumption that this "doubling" or compounding will continue in the future and that 16-17 year olds will have, on the average, 23.2 DMF instead of 14-16 as before fluoridation. Hence, the conclusion that fluoridation does not protect the teeth from caries but postpones the development or the detection of decay and should accelerate it in later years.

The reasoning underlying the above conclusion is fallacious and represents little more than a misguided guess on the part of the author. The data upon which his basic premise was founded is presented below in Table I and in Table II.

Table I. Average DMF per child from the age of 6-12, before fluoridation and after 6½ years of fluoridation, Newburgh, N. Y.

| Age | Average DMF Per Child No Fluoridation | Average DMF Per Child 6½ Yrs. of Fluoridation | Reduction in DMF | Reduction % |
|---|---|---|---|---|
| 6 | .44 | .12 | .32 | 72 |
| 7 | 1.10 | .32 | .78 | 70 |
| 8 | 1.90 | 1.23 | .67 | 36 |
| 9 | 3.00 | 1.45 | 1.55 | 52 |
| 10 | 4.00 | 2.30 | 1.70 | 42 |
| 11 | 5.00 | 3.00 | 2.00 | 40 |
| 12 | 6.40 | 4.10 | 2.30 | 36 |

Source: Paluev, Konstantin K. "Artificial Fluoridation-Laymen's Dilemma"

*Statistician, Jefferson County Board of Health.

Table II. Average DMF per child from the ages of 5-16, before fluoridation and after 6½ years of fluoridation, Grand Rapids, Michigan

| Age | Average DMF Per Child No Fluoridation | 6½ Yrs. Fluoridation |
|---|---|---|
| 5 | .109 | .048 |
| 6 | .775 | .259 |
| 7 | 1.886 | .844 |
| 8 | 2.945 | 1.577 |
| 9 | 3.898 | 2.040 |
| 10 | 4.921 | 2.929 |
| 11 | 6.409 | 3.669 |
| 12 | 8.073 | 5.886 |
| 13 | 9.734 | 6.600 |
| 14 | 10.945 | 8.211 |
| 15 | 12.482 | 8.906 |
| 16 | 13.499 | 11.061 |

Source: Arnold, Dean, Knutson: "Effects of Fluoridated Water Supplies on Dental Caries Prevalence - Seventh Year of Grand Rapids-Muskegon Study" PUBLIC HEALTH REPORTS, Vol. 68, No. 2, February, 1953.

It is true that the average number of DMF in the Newburgh study increased approximately 42% per year from the age of 8-12 and approximately 42% per year from 7-12 in the Grand Rapids study. It should be noted, however, that the DMF figures after 6½ years of fluoridation are rather small over this 4-5 year span and a 42% annual increase is, on the average, less than an increase of 1 DMF per year over this period and less than the annual increase observed before fluoridation began. Thus, a 42% annual increase is made to appear outlandish when, in reality, it represents a smaller increase than before fluoridation. The average annual increase over this period of time in Grand Rapids before fluoridation was 1.24 DMF and after 6½ years of fluoridation was 1.00. The average annual increase in Newburgh before fluoridation was 1.12 DMF and after 6½ years of fluoridation was .72. This is true in spite of the fact that most of the children in the after-fluoridation group had been drinking fluoridated water only a part of their lives, the 6 year olds being the only ones who had been drinking it a lifetime. The 12 year olds had been drinking fluoridated water for only slightly more than half their lives. The reduction in DMF would undoubtedly have been even more striking had all the children tested been drinking fluoridated water their entire lifetime instead of only 6½ years.

The author takes a look into the future and predicts that DMF per child after fluoridation will continue to double every other year and by the time he is 16-17 years of age, he would have 23.2 DMF and, presumably, this number would double by the time he was 18-19 (if it was possible). There is nothing in Tables I and II which would give rise to such an unwarranted prediction. When plotted, the after-fluoridation curve shows very little curvilinear tendencies but rather stays considerably below the before-fluoridation curve (see Figs. I and II). The author would have the reader believe that the after

fluoridation curve gradually approaches and crosses the before-fluoridation curve before the child is 16 years old. No data after the age of 12 was published in the Newburgh study but the Grand Rapids study has data before and after fluoridation up to the age of 16 (Paluev apparently ignored the data after 12) which clearly shows that the author's prediction was unfounded. An examination of Table II indicates that the "doubling" phenomenon did not continue after the age of 12. Fig. I shows the magnitude of the author's error in the Grand Rapids study. Had the children been exposed to fluoridated water all their lives instead of 6½ years, the difference in DMF would, undoubtedly, have been even greater.

Figures released in 1954 showing average DMF per child from the ages of 5-16 in Grand Rapids are presented in Table III. For comparative purposes, average DMF per child before fluoridation and after 6½ years of fluoridation are presented again in this table.

Table III. Average DMF per child from the ages of 5-16, before fluoridation, after 6½ years of fluoridation and after 8½ years of fluoridation, Grand Rapids, Michigan

| | Average DMF Per Child | | |
|---|---|---|---|
| Age | No Fluoridation | 6½ Years Fluoridation | 8½ Years Fluoridation |
| 5 | .109 | .048 | .018 |
| 6 | .775 | .259 | .186 |
| 7 | 1.886 | .844 | .712 |
| 8 | 2.945 | 1.577 | 1.405 |
| 9 | 3.898 | 2.040 | 1.833 |
| 10 | 4.921 | 2.929 | 2.413 |
| 11 | 6.409 | 3.669 | 3.124 |
| 12 | 8.073 | 5.886 | 4.759 |
| 13 | 9.734 | 6.600 | 5.115 |
| 14 | 10.945 | 8.211 | 5.919 |
| 15 | 12.482 | 8.906 | 9.747 |
| 16 | 13.499 | 11.061 | 9.533 |

Source: Arnold, F. A., Jr., Director, National Institute of Dental Research, Letter dated November 26, 1954, to Dr. Polly Ayers, Jefferson County Board of Health

It will be seen that, at all ages, DMF are less after 6½ years of fluoridation than before fluoridation and that, at all ages except one, DMF are less after 8½ years of fluoridation than after 6½ years of fluoridation. These figures further refute the "compounding" hypothesis advanced by Paluev.

The author mentioned the fact that the per cent reduction in DMF decreases from 72% at the age of 6 to 36% at the age of 12 in the Newburgh study. The per cent reduction is highest at 6 probably because the 6 year old has been exposed to fluoridation all his life and lowest at the age of 12 probably because the 12 year old has been exposed to fluoridation for slightly more than half his life. A study of Tables I and II reveals that there are outstanding

facts in the data which were not mentioned: (1) At all ages, DMF are considerably less after only 6½ years of fluoridation than before fluoridation, (2) the actual reduction in DMF as a result of fluoridation has shown a steady increase over the years in spite of the fact that most of the children had been exposed to fluoridation for only a part of their lives.

The author devotes almost two pages in his pamphlet to the subject of an "average" claiming that "The average number of DMF generally used by promoters in appraisal of the fluoride action is highly deceptive. For example, the average of 10 DMF obviously means that half of the total number of individuals have a great deal more than 10 DMF each, some may have 20 or even more." It also means that a great many of the children have less than 10 DMF, some may have none. When one speaks of an "average of 10 DMF" among a certain group of children, it is generally accepted as meaning that when the DMF of all the children are summed and divided by the total number of children, 10 is the resulting arithmetic mean or average DMF per child. The author overlooks the fact that his criticism of an average also applies to the average DMF before fluoridation as well as after fluoridation. The resulting comparisons are valid and emphasize the decay-reducing qualities of fluoridated water.

It is hoped that this "statistical mis-adventure" by the author of attempting to use statistics to support a pre-conceived opinion rather than forming an opinion after a careful study of the statistics will be recognized as such before irreparable harm is done. There is a lot of truth in the author's closing remark: "It ain't so much ignorance that ails mankind as it is knowing so much that ain't so."

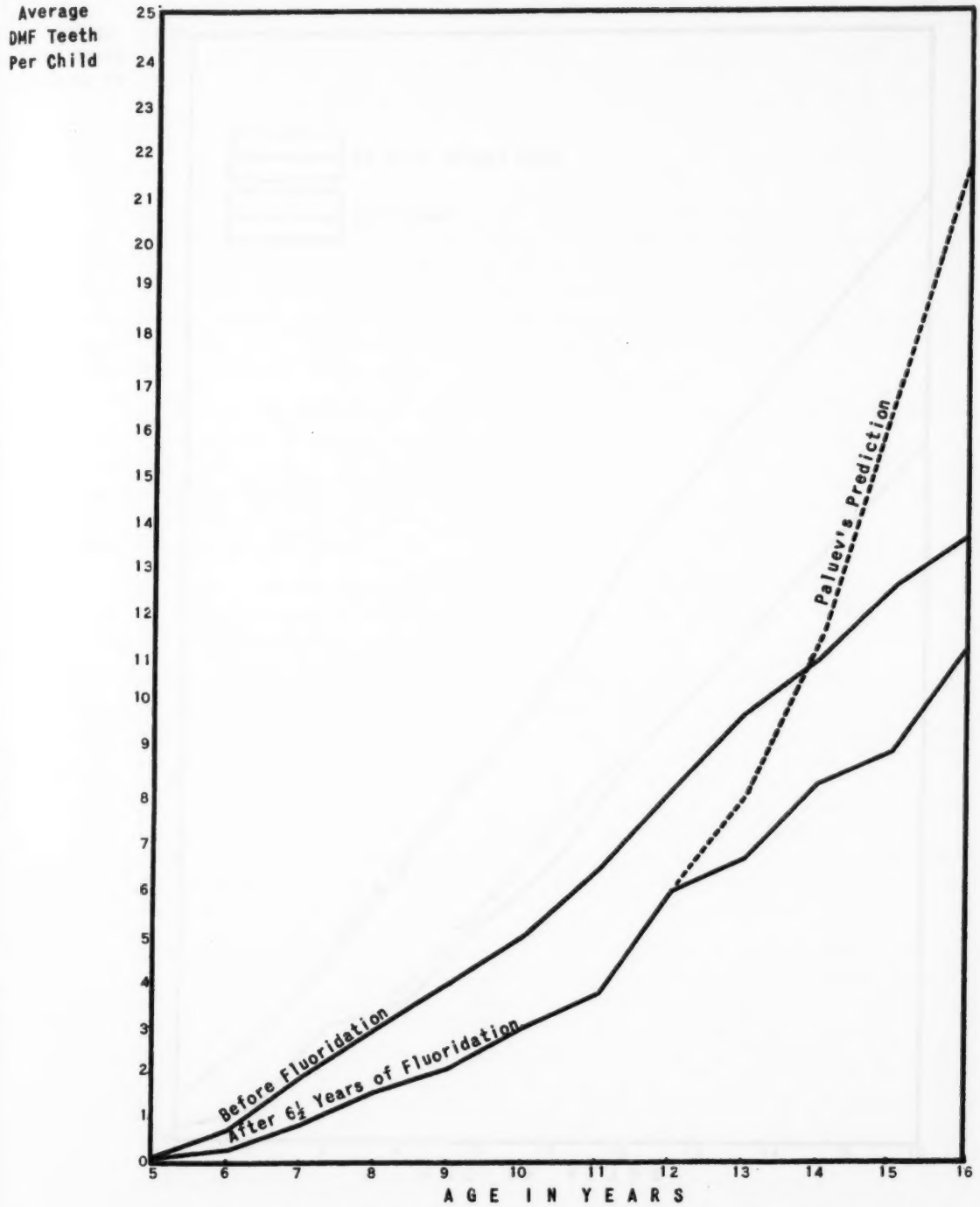


Fig. 1. Paluev's Prediction of Dental Caries Findings Among School Children 12-16 Years of Age After 6½ Years of Fluoridation and Actual Dental Caries Findings Among School Children 5-16 Years of Age, Before and After 6½ Years of Fluoridation, Grand Rapids, Michigan

Sources: Arnold, F. A., Jr., Dean, H. T. and Knutson, J. W. "The effect of fluoridated public water supplies on dental caries prevalence." *Public Health Reports*, Vol. 68, #2, February, 1953.

Paluev, Konstantin K. *Artificial Fluoridation-Layman's Dilemma*, February, 1954.

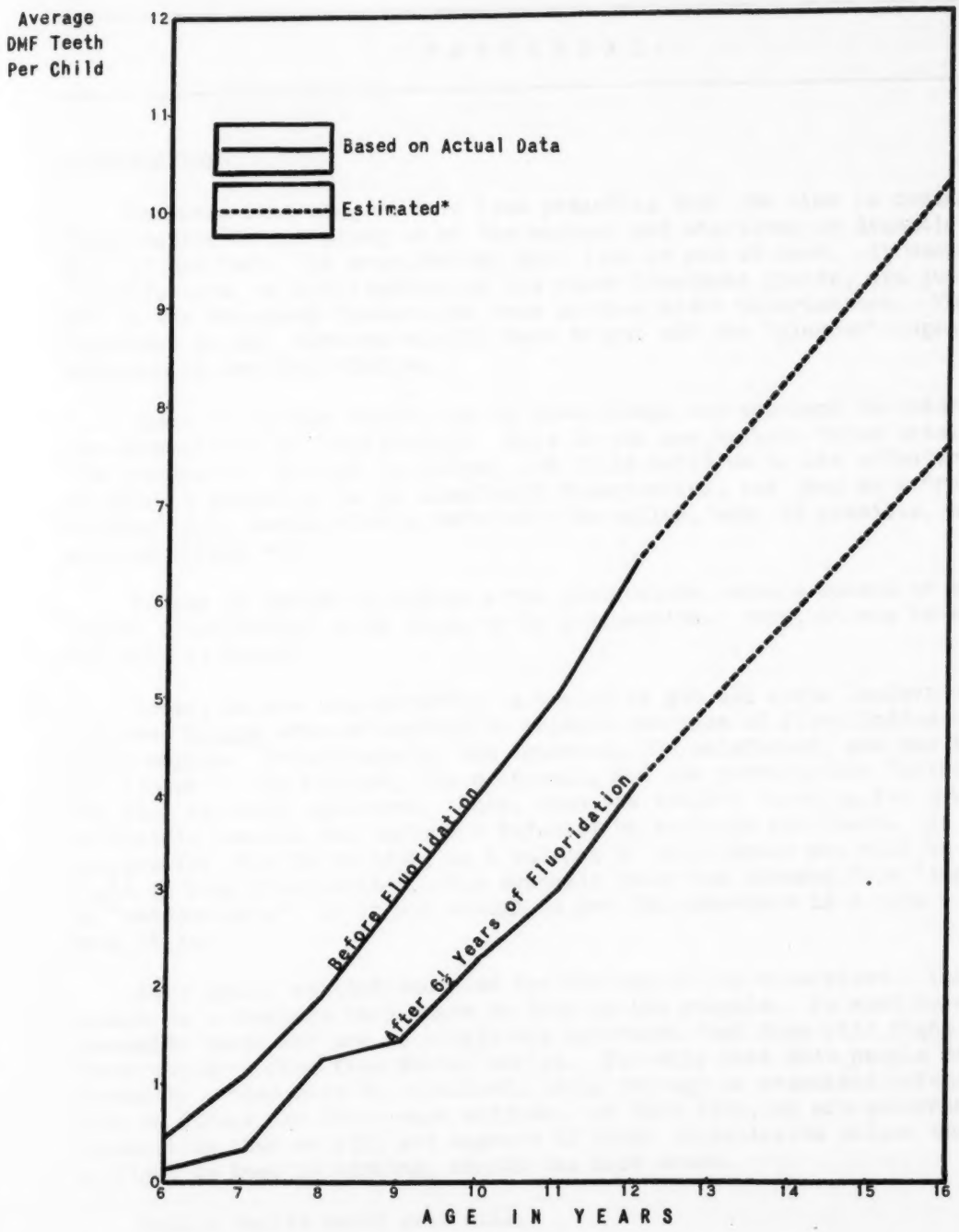


Fig. 2. Dental Caries Findings Among School Children 6-12 Years of Age, Before Fluoridation and After 6½ Years of Fluoridation, and Estimation of Average DMF Teeth Per Child from 12-16 Years of Age, Newburgh, N. Y.

Source: Paluev, Konstantin K. *Artificial Fluoridation-Layman's Dilemma*, February, 1954.

*DMF Teeth Per Child After Age of 12 Estimated by the Author of this Paper.

# EDITORIAL

## FLUORIDATION

For some time now, we have been preaching that the time is coming when fluoridation is not going to be the unusual and startling or dramatic gesture that it has been. In some states, that time is now at hand. It means that new installations, or modification of old water treatment plants, are just going to put in the necessary feeders the same as they would chlorinators. Why is this important to us? Because we will have to get off the "glamour" wagon in our approach to new fluoridation.

There is another reason why we must change our approach to interesting new communities in fluoridation. This is the new methods being tried out by the opponents. The new technique, and it is devilish in its effectiveness, is to allow a community to go ahead with fluoridation, and then do a "rabble rousing" job, demand that a referendum be called, and, if possible, have the process thrown out.

We can no longer go before a few civic clubs, make a speech or two, and expect fluoridation to be taken up by a community. Sure, it may be accepted, but will it stick?

Today, we are concentrating on trying to get all civic leaders completely informed before even attempting to promote the idea of fluoridation of their water supply. Unfortunately, the ignorant, the uninformed, and the indifferent all listen to the radical, the emotional, and the psychopathic "authorities" who play on their ignorance. Then, when the subject comes up for a vote, the scientific reasons and facts are defeated by emotions and fears. We must prepare for this by building up a bulwark of individuals who will be willing to fight to keep fluoridation. The emphasis today has changed from "installation" to "maintenance." It is not enough to get the procedure in a city - we must keep it in.

Here again, we find the need for the use of lay committees. You and I cannot be everywhere in a state to take up the cudgels. We must have in each community those who are so completely convinced that they will fight to keep their children free from dental caries. Not only must such people be in the community - they must be organized. Only through an organized defense can we hope to defeat the front-page addicts. At this time, we are informing all new communities that we will not approve of their installation unless they agree to fight to keep it working, should the need arise.

Public Health never gets dull.

H. S. D.

## NUTRITIONISTS AND DENTISTS

Two recent publications have crossed this writer's desk which tended to make the blood boil. One of them at least could be expected to do so just on hearing its title and publisher: Sugar as a food. New York, Sugar Information, Inc., 1955, 31 p. This brochure, apparently, has been mailed to most health workers but understandably not to dentists. In a sense its "malcontentions" can be understood, if not excused, on the basis of commercial interest.

The other is much more insidious in that it carries considerable authority and has tradition behind it: Martin, Ethel A. Roberts' nutritional work with children. Chicago, University of Chicago Press, 1954. 527 p. This book has received many glowing reviews in various journals. Chapter VI has been "recommended as a useful source of information to pediatricians" on the "relationship of nutrition to dental problems" by one reviewer.* Yet, nowhere in this chapter could one find any adequate references to the role of fermentable carbohydrates in dental caries!

The obvious lack of understanding and the lack of exchange of information between nutritionists and dentists is deplorable. Does not the AAPHD have an obligation to attempt to bridge the chasm between the two disciplines? Or is it the job of the ADA? Why can't some of dentistry's more fluent and convincing authorities be urged to submit articles on nutrition and dental caries to various nutrition journals? Can't nutritionists be invited to various meetings of dental groups either as observers or program participants? Can the nutritionists and dentists of the APHA be urged to meet and resolve their differences? It is hoped that they can and will.

*Etteldorf, J. M., Reviews of recent books. Am. J. Clin. Nutrit., 3:161, Mar.-Apr. 1955.

D. F. S.

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## WHO EVALUATES WHO?

The fact that this editorial is being written some three or four days prior to a scheduled review of a state dental health program is important. Written after the review it might be attributed to pique on our part over the criticisms made by the reviewers. At this writing we welcome the review, anticipate criticisms, expect to argue about some of them and are sure some of them will result in program improvement.

But suddenly we have wondered, "Who reviews the reviewers and their programs?" And our mental query starts an interesting chain of thought that ambles around as follows:

Does review of state programs by Federal personnel denote a position of superiority on the part of the latter? What warrants that relativity in status? Who established it? Does the potential largesse of the Federal

government influence a privilege of evaluation by Federal level personnel? Is the privilege the same in a state that gets little or no Federal aid as in one getting thousands of dollars?

As a matter of fact, who (our thoughts continue) gives state level dental personnel a ranking position over, and the privilege of evaluating, county dental health programs? Might not it be indicated that county personnel be permitted to review state dental health programs? And even Federal programs?

We recall a "conference hassle" a few years ago on the matter of how an organization chart should be depicted. The suggested chart listed the Federal government at the top - followed in order below by State, County, City. A complete reversal of this order was insisted upon by some. How it turned out we have forgotten. But in regard to "evaluation" it might be wise to reverse the order. On the other hand perhaps the coming "review" would seem more ominous were county personnel coming to evaluate the State's program. Their criticisms might be of more value, too. And even if not ominous a review of Federal programs by county and/or State personnel might be of value. At least it would tend to answer our query "Who evaluates who?"

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LOLLIPOP HASSLE

How widespread was the practice of rewarding child recipients of Salk vaccine by giving them lollipops is unknown. In an instance in which it was done the results make quite a tale.

First, let it be known that the plan to give them was not known to the interested dental health personnel until too late to cancel it. Once known letters protesting the plan were transmitted to those in charge. (These letters preceded the storm of protests voiced by letter and telephone by members of the dental profession). The recipients of the letters admitted the validity of the opinions (1) that one health group should not so blithely ignore the principles held by another health group and (2) that there was doubtful propiety in permitting a health project to serve as a medium for the distribution of any unrelated commercial product.

Came a dental meeting - at which the sentiment of these letters was related by a speaker to a small group of dentists plus, apparently, a news reporter. The headlines and gist of the resulting news stories may be guessed, "Dentists would deprive children of candy" being the substance of most. Letters to the Editor followed (a few in support of the <u>real</u> points at issue).

Gradually the hub-bub has subsided but only after lollipops got a lot of free advertising. But in the latter days of the hassle an interesting conversation took place between a public health dentist and an acquaintance, a public health employee (non-professional). Said he, "Doctor, I am the one who negotiated the giving of the lollipops. And I want you to know that I consider your belief that carbohydrates cause dental decay completely untenable ..... completely!!" Asked the dentist in reply, "Did you reach that conclusion based on your study <u>before</u> you negotiated the plan or did you reach it in the few days since the furore started?" Without reply he turned and walked away.

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## N O T E S and N E W S

### SAN FRANCISCO

The 1955 annual meeting of the A.A.P.H.D. will be held in San Francisco at the Sir Francis Drake Hotel on Sunday, October 16. Reservations should be made through the A.D.A. Housing Bureau, 61 Grove Street, San Francisco 2, California.

### PLEASANT

The inclusion of Carl Sebelius on the program of the Maryland State Dental Association early in May gave opportunity for a pleasant talk fest by him and Dick Leonard. Carl's paper, excellent of course, was well received. Following presentation of his formal paper Carl participated in a panel discussion on dental health which was moderatored by Dr. George M. Anderson, the balance of the panel being comprised of H. Berton McCauley of Baltimore, H. James Kershaw of West Warwick, R.I. and "ye Editor."

### SPEAKER

Fred Wertheimer, Michigan Dental Director and Bulletin Publisher was the guest speaker at a breakfast meeting of the Illinois State Dental Society, Council on Dental Health on May 10 during the Association's annual meeting. Fred's subject was "The Community - Patient of the Dental Society".

### NEW MUNICIPAL DIRECTOR

Word from C. E. Presnell, Director, Bureau of Dental Health, Missouri Division of Health announces the appointment of Dr. Ozias Paquin, Jr. as "Supervisor of Dental Clinics" for the city of St. Louis. Appointment sometime in the Spring, it is hoped that by now Dr. Paquin is a member of the A.A.P.H.D.

### TERRITORIAL DIRECTOR

Word has been received of the appointment of Dr. J. R. Robinson as the "new and first" Director of the Division of Dental Health in the Territory of Hawaii Department of Health. Formerly dental director in Louisville, Kentucky Dr. Robinson assumed his new duties on May 1st. We felicitate him, congratulate Hawaii and hope he can arrange for an A.A.P.H.D. meeting out there (an expenses paid meeting, of course).

## KANSAS REPORTS

According to a news story in the Kansas City Times of April 2, 1955, William Bellinger, Kansas Dental Director, has been elected Vice-President of the Kansas Public Health Association. And through the News Letter of the Kansas State Board of Health we learn that Bill, in March, took a course in Post-graduate Education, a new project sponsored jointly by the University of Kansas School of Medicine and the University of Kansas City School of Dentistry.

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## A.D.A. COUNCIL MEETINGS

The Council on Dental Health of the American Dental Association has announced a conference to be held in San Francisco on Saturday, October 15, just prior to the A. D. A. annual meeting. A second meeting at an as yet unspecified time will also be held by the Council in conjunction with the A. D. A. Council on Federal Dental Services.

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## DECADE CEREMONY

The tenth anniversary of the Newburgh-Kingston (N. Y.) fluoridation study was observed with appropriate ceremonies in April. Replete with substantiating evidence of the effectiveness of fluoridation in reducing the incidence of dental decay, the occasion also gave opportunity to show that rather than this public health measure being potentially dangerous to health that all evidence pointed to the contrary, there being in case of some public health aspects a positive improvement in rates and conditions. Among those participating in the anniversary program was A.A.P.H.D.'er David Ast, the original sponsor of the study.

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## CORROBORATION

A recent dental survey of 534 Coeur d'Alene, Idaho (reported by both Dave Striffler and G. P. Larson) gives corroborating evidence of the benefit in caries reduction resulting from the 1952 fluoridation of that city's water supply. In six, seven, eight and nine year old children there was noted, respectively, 55, 45, 41 and 29 per cent reductions in caries incidence. Even more gratifying are the statistics showing that while in 1952 the 7, 8, and 9 year age groups had lost, respectively, (per 100 children) seven, fourteen and twenty-eight first permanent molars the 1955 study showed for the same age groups (again per hundred) no lost permanent molars, one and one. Fluoridation not only reduces decay, it saves teeth.

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## AND YET

In spite of the foregoing wonderful findings on the benefit of fluoridation to Coeur d'Alene children it is reported - as of March 16 - by Dr. Larson (acting Dental Director of the Idaho Department of Public Health) that "recent activity on the part of anti-fluoridationists has resulted in a decision by the City Council to place fluoridation on the ballot in the April election." Regrettably, the election was <u>against</u> fluoridation according to report in the News Letter of the Idaho State Dental Association. A pertinent question seems to be, what will the lost permanent tooth rates of Coeur d'Alene children be in 1958?

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## BOOK REVIEW

<u>Dentistry in Public Health</u>* made this reader proud to be a public health dentist and proud of public health dentistry. Would that this book could be read and studied by all other disciplines of public health, especially health officers. This book, as did its first edition, adds stature to dental public health. It is a thoroughly professional and workmanlike job.

Besides making one proud, certain chapters catch one up and give one pause to reflect on one's own program. One is constantly asking oneself while reading this book: "Is this an idea I can use? Or perhaps should use? Have I given this or that a fair trial?" John Fulton's chapters on administration and practice more often than not by subtle implication cause one to evaluate one's own program—<u>and</u> in the light of newer knowledge and information.

This second edition of Pelton and Wisan's <u>Dentistry in Public Health</u> has contributions by the two editors themselves, as well as by John Knutson, Albert Russell, and John Fulton with 10 chapters in all and 282 pages. The first edition had 18 contributors, 17 chapters and 363 pages. All in all, the second edition is considerably smaller due to its larger and more readable type and due to the fact that much of the material found in the first edition has been "boiled down." In most instances this conciseness and simplification is to be commended, especially for the busy reader. Most likely, however, readers will want to keep <u>both</u> the first edition and the new second edition side by side on their desks for ready reference. The second edition cannot be considered as a complete substitute for the first edition, but rather a valuable supplement—worthwhile in and of itself—but all the more worthwhile as a companion to its predecessor.

The most important feature of the new edition is that it brings the reader the new developments in dental public health since 1949—and in a well documented and challenging manner. Two points in this respect are noteworthy: (1) fluoridation, its progress, and its growing volume of research and evidence are aptly summarized and documented by Russell; and (2) other

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*Pelton, W. J. and Wisan, J. M., eds. Dentistry in public health. 2nd ed., Philadelphia, Saunders, 1955. X + 282 p. $6.50.

dental diseases than caries are, for the first time, given serious consideration. Periodontal disease, its significance to public health, and an index of gingivitis prevalence (PMA) are discussed by both Knutson and Russell. Congenital defects, oral cancer, and malocclusion (including the dento-facial index, DFI) are also emphasized.

Pelton's two chapters deal with dental manpower and economics. They present new and more refined assessments of these areas.

Knutson's three chapters define public health and discuss surveys, evaluation, and elementary statistics. He has very clearly outlined the basic elements of statistical analysis, and simply enough so that the uninitiated will not "shy away" as is so often the case.

Wisan's chapter on dental health education (from his viewpoint as a public health dentist) gives fresh insight to Nyswander's chapter in the first edition (from her viewpoint as a health educator). In addition, it gives valuable suggestions for evaluating dental health education.

The horizons of dental public health are expanding and the problems presented by these "new" diseases and considerations should challenge and intrigue every public health dentist.

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## PROCEDURAL

An outline of "operating procedures" under which the A. P. H. A. Section on Dental Health will conduct its affairs is being developed by a committee comprised of William Kroschel, Richard C. Leonard, and John E. Chrietzberg, Chairman. While Sections are controlled by the Association's by-laws, establishment of directives for guidance at the Section level has become important. The committee will report at the next annual A. P. H. A. meeting.

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## GOOD NEWS!

From every point of the compass the Editor has received notes telling of Dr. Ed. Taylor's entrance into private practice. Each note was saturated with gratification that Ed has recovered from his illness to a point permitting his return to activity in the dental field - not dental public health it is true. But <u>that</u> may come for read Ed's own idea about it as expressed in a letter addressed to the Editor:

> "If you did not know it, I was discharged from hospital with a clear slate. They think I never had T. B. It was histoplasmosis.
>
> "I've gone into private practice in Austin. Bought a two chair office of a man who died suddenly. But I'm not burning any bridges

back to public health. The bug bit me pretty hard. I'd like to get the Bulletin. Bill me for it or tell me how much.

Sincerely,

Ed T....."

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## OVERWHELMING

Suggestions as to topics to be discussed at the proposed "Workshop on Dental Public Health Practice" in Ann Arbor, Michigan, sometime in 1956 cover such broad fields as to overwhelm one. Request by the committee developing the program (Walter J. Pelton, Jack M. Wisan and Fred Wertheimer) to select designated areas of discussion proves most difficult since all suggested areas are of such great importance. The ultimate agenda will be awaited with interest, and the hope that "scads" of Bulletin copy will come from the Workshop.

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## DENTISTRY AND ENDOCARDITIS

The Spring 1955 issue of "The American Heart" features an article on the launching, by the American Heart Association, of "an intensive campaign, in cooperation with the organized dental profession, to stamp out another serious form of heart disease - endocarditis." Announcement is made of the two Association's joint issuance of a chart "incorporating recommended dosages and procedures for giving penicillin when needed before oral surgery."

The article closes with the following joint statement from Dr. E. Cowles Andrus, President, American Heart Association, and Dr. Daniel F. Lynch, President, American Dental Association:

> "This program for the prevention of bacterial endocarditis is possible only because of the splendid cooperation between the dental profession, represented by the American Dental Association, and the medical profession, working through the American Heart Association...We believe that through our continued cooperation in this program we can virtually eliminate the danger of bacterial endocarditis to persons who must undergo oral surgery procedures."

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## MORAL - DONT ASK QUESTIONS

Associate Editor Dave Striffler's query in the February Bulletin as to whether other states can match the .045¢ per capita expenditure of Tennessee and New Mexico for dental public health activity has not elicited many responses. In fact, only one--a telephone call from Dr. George M. Anderson, dental member of the Maryland State Board of Health. His call asked, "How about Maryland?" Following is an abstract of the reply given him: In Maryland in 1954 a total of $183,008.60 (0.07¢ per capita) was spent in health department dental care programs. This total was comprised of $6,853.25 Federal funds, $77,215.75 State funds and $98,939.60 local (county and municipal) funds. Of the total expenditures $90,174.06 were used in Maryland's 23 counties (population 1,557,572) for a per capita rate of 0.058¢ and $92,834.54 in Baltimore City (population 986,428) for a per capita rate of 0.094¢.

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## HARRY STRUSSER MEMORIAL FUND ESTABLISHED

An award in honor of the late Dr. Harry Strusser, former director of the dental division at the New York City Department of Health, has been established at the New York University College of Dentistry, Dean Raymond J. Nagle announced.

Funds for the award were presented to the College by the Dr. Harry Strusser Memorial Fund Committee. The award is a gold medal to be given to the senior student in the College of Dentistry showing "the most promise in the field of public health dentistry."

The Dr. Harry Strusser Memorial Fund was created by friends of the late public health official "as a demonstration of respect and appreciation for the effort and leadership demonstrated by Dr. Strusser in the field of public health and the ideals exemplified during his professional life in the broad field of dentistry."

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## DELAYED PRAISE

Reaching us too late for earlier comment, the February issue of the Journal of the Missouri State Dental Association is worthy of continuing praise. Devoted almost exclusively to topics or viewpoints on dental health, originally presented in panel discussion held during a State Dental Association meeting, the papers provide the viewpoints of lay persons as well as of dentists.

Incidentally, the same Journal contained a fine report on "Radiation Exposures From Dental X-ray Apparatus" by L. F. Garber and C. E. Presnell. Very interesting - particularly since it dealt with a phase of health too often ignored - the dentist's health.

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REMEMBER

Don't forget November 14 - 18 meeting of the A. P. H. A. in Kansas City. The Dental Section officers are very active and their enthusiasm indicates an extra good meeting in 1955.

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TOO BAD

Carl Sebelius' commitment to be on the Maryland State Dental Association's program the first week in May forced him to leave Las Vegas, Nevada, before "the bomb" went off. Carl, as representative of the A. D. A., had been in Las Vegas for some time hoping weather conditions would permit the "explosion"... but luck was not with him.

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INSTITUTE

The next Annual Meeting of the American Institute of Dental Medicine will be held at the Desert Inn, Palm Springs, California, October 23-27, 1955. Full information relative to the meeting may be had from the Executive Secretary, Miss Marion G. Lewis, 2240 Channing Way, Berkeley 4, California.

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CORRESPONDENCE

Dated March 16, the following letter was received from the Bulletin's ace reporter, Carl Sebelius:

March 16, 1955

Dear Dr. Leonard:

I thought that you might like to see the attached copy of "Dental Public Health Highlights" which may contain some general information that you would like to use in the Bulletin.

Yours very truly,

/s/ Carl L. Sebelius

Carl L. Sebelius, Director
Division of Dental Health

CLS/mg
Enc.

Whether acknowledgment of receipt of this letter was sent Carl is uncertain. In any case, the Bulletin is used to transmit the following information to him:

May 12, 1955

Dear Carl:

We kept your letter but misplaced, lost or destroyed your news items. Unintentionally, of course. Please do not let this error keep you from contributing in the future.

Sincerely,

The Editor

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OH! HAPPY DAY!

The long time desire to have this section of Bulletin better cover the Western States became a reality last Fall in Miami when the Executive Council appointed Dave Striffler as an Associate Editor. To witness why that was such an "Oh! Happy Day" read the next ten items contributed by Dave. (Don't blame him for the captions). Incidentally, he has attempted, fruitlessly, to obtain articles from the wide open spaces for Bulletin publication. Don't let him down.

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SERVICE

During Children's Dental Health Week, Denver dentists provided complete dental care to some 600 children of Denver's four orphanages. The dentists also provided free toothbrushes. The Denver Tramway Corp. provided free transportation to the dental offices.

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WELCOME TO THE FOLD

New Mexico has now removed itself from the list of states which have taken no action on fluoridation. Two communities in New Mexico, Raton and Santa Fe, have approved the measure, and by the time this is published are expected to be fluoridating.

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## USING T V

The Albuquerque District Dental Society is currently putting on a series of pan television programs entitled, "Ask Your Dentist." Local dentists take their turn in appearing on the program to answer questions on dental health which are phoned in by the viewers. Three telephones are kept busy during the half hour the program is on the air. The television committee of the society answers the phones and screens the questions coming in. The committee has secured free time for this monthly program but has employed a professional moderator. Care has been taken to see that commercials preceding and following the program can in no way be construed as having a tie-in with the dental program.

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## VISITORS

Wes Young, Phil Blackerby and Jack Pelton all came out to see how the Southwest lives during March. They were in Phoenix, Arizona, for a meeting of a special advisory committee to the Western Interstate Commission on Higher Education. They are studying, in particular, dental educational needs of the Western States.

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## RUBLE REPORT

A letter from Jim Ruble (who recently resigned as dental director in West Virginia) indicates that he and his wife have purchased a farm in Virginia and that he is planning on taking the Virginia Boards this June preparatory to entering private practice. Jim also reported that in trying to get a hay baler through a gate on an icy day, he fell and broke his leg in three places, but all is healing nicely. He may be addressed at Warm Springs, Va.

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## DUTY

Joe Krupicka, regional dental director in Illinois, writes from Okinawa that he won't be having much to do with public health for about 24 months.

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## DOES IT FLOAT?

Reports from Oregon indicate that the Proctor and Gamble Soap Company have placed a new dentifrice on the market in Portland. This dentifrice, called "Crest," is reported to have as its active ingredient "fluoristan" (stannous fluoride (?) ). Apparently the type of advertising campaign which

goes with this new "miracle" dentifrice is playing hob with any fluoridation campaign. Food and Drug Administration, where are you?

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QUERY

A casual perusal of the directory of the Western Branch, APHA, shows not a single dentist listed. Could it be because they carry advertising of a certain soft drink manufacturer?

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ABILITIES RECOGNIZED

Bob Downs is currently President of the Colorado State Dental Society. Congratulations, Bob! Chet Dalgleish is Secretary of the Utah State Dental Society. Congratulations, Chet!

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PLEASE ANSWER THE QUESTION

The Ventura County Health Department (California) has conducted an excellent study on the optimum fluoride level for their climate. How about a complete write-up for the Bulletin, Lloyd Richards?

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ONLY TWO DAYS?

That so much was covered in only two days at the "Conference On Field Training For Public Health Dentists" held June 28 and 29, 1954, in New York City is nearly unbelievable. But the "Proceedings" of the meeting, itself a forty-eight page report, indicate that no time was lost and that careful, brilliant consideration was given each facet of this important essential to progress in dental public health.

Since copies of the Proceedings have probably been widely distributed, let the following "General Conclusions and Recommendations" serve to indicate the excellence of the conference:

1. Carefully planned and supervised field training, as a supplement to formal graduate education in public health, is essential for the public health dentist.

2. Suitable opportunities for field training for public health dentists are not available at present, and programs should be developed to meet this need.

3. Three types of field experience should be provided, including (1) general orientation, prior to the academic course, (2) integrated field experience or clinical education during the academic program, and (3) post-academic field training or residency coordinated with the academic preparation.

4. Both the school of public health and the field training agency have responsibilities for the over-all training of the student, and their planning and instruction should be coordinated as much as possible.

5. The objectives of field training for public health dentists are basically the same as for other public health personnel, but the experience should be related wherever feasible to dental public health problems.

6. The basic areas of practical experience which should be included in all field training programs are (1) diagnosis of community health needs, (2) treatment of community health needs, (3) consultation and liaison with other groups and individuals, (4) evaluation, and (5) research.

7. These areas of experience should be spelled out in detail, in planning field training programs.

8. Adequate provision should be made for participation, as well as observation, by the trainee in all aspects of the program.

9. Field training should be a planned, individualized experience which provides a continuing relationship of consultation with the preceptor throughout the training period.

10. In the selection of field training centers, criteria to be considered include (1) adequate professional, technical and clerical personnel, (2) adequate supplies and equipment, (3) clearly defined long and short-range objectives, (4) a dental program effectively coordinated with other phases of the public health program, and (5) good working relationships with other agencies.

11. Academic and field training should be effectively integrated, rather than separated as distinct and unrelated phases of the student's total preparation in public health.

12. In the curricula of the existing schools of public health, provision should be made for additional field experience, even if it becomes necessary to increase the length of the graduate program from nine to twelve months.

13. Consideration should be given, for the field training of public health dentists, to centers or programs accredited for residency training of public health physicians.

14. State health departments should be encouraged to develop, at both the state and local levels, pilot programs for the field training of public health dentists.

15. The American Public Health Association should urge federal and state health authorities to provide additional funds to support the education of public health personnel, including field training.

A. A. P. H. D. members formally participating in the conference were David B. Ast, Philip E. Blackerby, Jr., John E. Christzberg, Kenneth A. Easlick, Thomas L. Hagan, Walter J. Pelton, Carl L. Sebelius, and Fred Wertheimer.

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ELECTED

Richard C. Leonard has been elected a member of the United Cerebral Palsy Clinical Advisory Board.

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